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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,860	01/16/2002	Eric Bergman	263/169 P01-0007	1640
45540	7590	07/28/2005	EXAMINER	
PERKINS COIE LLP/SEMITOOL PO BOX 1208 SEATTLE, WA 98111-1208			STINSON, FRANKIE L	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/051,860

Applicant(s)

BERGMAN, ERIC

Examiner

FRANKIE L. STINSON

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 June 0205.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,5-10,12-18 and 33-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-10,12-18 and 33-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-10, 12-18 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torek et al. (U. S. Pat. No. 6,758,938) in view of Japan 1-955222 (Japan'522), Izumi et al. (U. S. Pat. No. 5,927,306), Miki et al. (U. S. Pat. No. 3,325,081) or Fishkin et al. (U. S. Pat. No. 6,202,658).

Re claim 1, Torek is cited disclosing an apparatus for processing a workpiece comprising:

a liquid supply source (pool 95);

one or more liquid outlets (75) disposed to apply a layer of liquid onto the workpiece (see col. 2, lines 46-57);

a liquid flow line (see fig 2) extending between the liquid supply source and the one or more liquid outlets for carrying liquid to the liquid outlets;

at least one heater (45) for heating the liquid before it is applied onto the workpiece;

an ozone gas supply system (as at 100) which provides ozone gas around the workpiece (see abstract) while the layer of heated liquid is on the workpiece that differs from the claim only in the recitation of the a sonic energy source associated with the liquid outlets for introducing sonic energy to the workpiece through the layer of liquid on the workpiece. Japan'522, Izumi, Fishkin and Miki are each cited disclosing that it is

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very old and well known to in the art of processing semiconductor workpieces, to have sonic energy associated with water-filled baths, supports and nozzle outlets for applying sonic energy waves for intensifying the cleaning or other processes. It therefore would have been obvious to one having ordinary skill in the art to modify the outlets of Torek, to include sonic energy associated therewith, for the purpose of enhancing the cleaning process. It has long been recognized in various arts that the application of sonic energy to a gas, liquid, supports or tanks, increases the effectiveness of the desired process. Miki for example teaches that suggests that by applying high frequency sound waves it is possible to "increase the washing effects" and to "shorten washing time" (see Miki col. 6, lines 64-67). Re claim 4, Torek, as proposedly modified, discloses the sonic energy source associated with the liquid outlets as claimed. Re claim 5, Izumi discloses the focusing chamber for the sonic energy. Re claim 6, to have the heater, heating the reservoir is deemed to be an obvious substitution of equivalents (see MPEP 2144.06 SUBSTITUTING EQUIVALENTS KNOWN FOR THE SAME PURPOSE. Re claim 7, Torek, Japan'522 and Miki disclose the liquid as claimed. Re claim 8, Torek, Izumi and Miki disclose the chamber. Re claim 9, Torek discloses the re-circulation as claimed. Re claim 10, Torek discloses the rotor (see fig. 5). Re claim 11, Torek, Japan'522, Fishkin, Izumi and Miki disclose the nozzles as claimed. Re claims 12-14, Torek discloses the controlling of the layer thickness (see col. 2, lines 46-57). Re claim 15, Torek discloses the controlling of the thickness as claimed (see col. 9, lines 9-11). Re claim 16, Torek is cited as applied above disclosing an apparatus for treating the surface of a workpiece comprising:

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a liquid reservoir for holding a process liquid;

a process chamber;

a workpiece holder (85) within the process chamber;

liquid spray nozzles (75) within the process chamber disposed to spray liquid onto the workpiece held by the workpiece holder;

a liquid flow line extending between the liquid reservoir and the liquid spray nozzles;

an ozone generator (see col. 6, lines 25-30) for generating a supply of ozone;

one or more ozone supply lines (not shown) extending from the ozone generator to the process chamber;

at least one heater for heating the process liquid,

that differs from the claim only in the recitation of the sonic energy source on the workpiece holder for introducing sonic energy to the workpiece. Japan'522 is cited disclosing that it is old and well known to provide a workpiece holder (see fig. 2) where there is provided a sonic energy source on the workpiece holder, for introducing sonic energy to the workpiece. It therefore would have been obvious to one having ordinary skill in the art to modify workpiece holder in Torek, to include a sonic energy source as taught by Japan'522, for the reasons as previously stated in paragraph 2 above. Re claim 19, Japan'522, Fishkin, Izumi and Miki all disclose the horizontal orientation of the workpiece as claimed. It therefore would have been obvious to one having ordinary skill in the art to modify the orientation of the workpiece in Torek, to have and horizontal orientation as taught by Fishkin, Izumi and Miki, since Torek discloses that a "wide

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variety of rotating mechanisms could be used" (col. 8, lines 61-67). Re claim 18, Torek discloses the spent fluid valve (65).

3. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampert et al. (U. S. Pat. No. 5,181,985) in view of Maekawa et al. (U. S. Pat. No. 5,868,866).

Re claim 35, Lampert is cited disclosing a chamber, a rotor and heater, an ozone generator for treating a workpiece that differs from the claim only in the recitation of the sonic energy source. Maekawa disclosing the sonic energy source for energizing droplets of treating fluid. It there fro would have been obvious to one having ordinary skill in the art to modify the device of Lampert, to include sonic energy as taught by Maekawa for the purpose of enhancing the treatment process.

4. Applicant's arguments with respect to claims 1, 5-10, 12-18 and 33-35 have been considered but are moot in view of the new ground(s) of rejection.

However, in regard to the remarks on the Torek et al reference, it has been note that the application of liquid droplets has not been found in the reference.


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANKIE L. STINSON whose telephone number is (572) 272-1308. The examiner can normally be reached on M-F from 5:30 am to 2:00 pm and some Saturdays from approximately 5:30 am to 11:30 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached on (571) 272-1700. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

fls



FRANKIE L. STINSON  
Primary Examiner  
GROUP ART UNIT 1746